

KC Weed News – August 2007

King County, Washington

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Weed of the Month: Bohemian Knotweed (*Polygonum x bohemicum*), Class B Non-Designate Noxious Weed in King County, WA

You are probably familiar with Japanese knotweed, sometimes called false bamboo. Well, in 2003, we were introduced to a new noxious knotweed in the Pacific Northwest. Or rather, we found out that the very familiar noxious knotweed was even more complicated than we had realized. It turns out that the plants we had grown used to calling Japanese knotweed are mostly not technically that species at all. Peter Zika and Arthur Lee Jacobson reported their findings on the overlooked hybrid bohemian knotweed in the journal *Rhodora* (Vol. 105, No. 922, pp. 143-152, 2003) and it became clear that most of the invasive knotweed in King County was in fact a hybrid, the naturally occurring offspring of Japanese and giant knotweed, that seems to have appeared first in central Europe but is now widespread in North America.

This is interesting to botanists of course, but why should it interest everyone else? The main reason for concern is that the knotweed hybrid is even more aggressive, competitive and able to thrive in a wide range of habitats than either of its parent species. And perhaps even worse, the earlier populations had less genetic diversity than is being found now as plants back-cross and generally mix it up genetically. This could mean that knotweed will be even trickier to manage in the future as it develops an even broader tolerance for different conditions.

If you enjoy history, you might be interested to know that all three of the large invasive knotweed species – the hybrid bohemian knotweed and its parents, Japanese and giant knotweed – are originally from Asia but were bred for ornamental use in Europe starting in the 1800's with Japanese knotweed. All three were sold throughout the United States and Europe, although it became clear by the early 1900's how aggressive and invasive they could be. It isn't clear when the hybrid Bohemian knotweed first entered the market, but by the mid 1900's it was already well established both as an ornamental and as a naturalized invasive plant in Europe and apparently in North America as well. The literature is not always clear because the hybrid

wasn't even officially described until 1983 in Europe although examination of earlier collections showed that it has been around since before 1950. Here in the United States, almost all of our references talk about Japanese knotweed and giant knotweed but don't mention the hybrid. However, because of the work of Zika, Jacobson and others, we now realize that we have had bohemian knotweed in western Washington for some time. In fact, when I look over our photographs from the past ten years, I realize that most of what we thought was Japanese knotweed is in fact bohemian knotweed. At least we correctly identified giant knotweed – its size alone distinguishes that species!

All three of these large [invasive knotweeds](#) pose a serious threat to the health of riparian habitat in King County and are all highly challenging to eradicate. The hybrid bohemian knotweed is by far the most difficult to control but all three will put up a good fight against any method thrown at them. If you have knotweed, it doesn't really matter which species it is since the control methods are the same as well as the potential impacts if they are not controlled. However, if you want a quick way to tell them apart, look at the leaves about midway down a stem. The base of the leaves of the hybrid varies from somewhat heart-shaped to flat while giant knotweed leaves are always deeply heart-shaped at the base and Japanese knotweed leaves are always flat across the base, not heart-shaped at all. Also, oddly enough, most of the bohemian knotweed plants are male (no seeds) and most of the Japanese and giant knotweed plants are female (form seeds late in the summer). We have occasionally found exceptions to this so it's not a sure way to tell them apart. I should also note that there is another large invasive knotweed, [Himalayan knotweed](#), that is sometimes grouped together with Japanese, giant and bohemian, although it is not as closely related as the others. Himalayan knotweed is not quite as aggressive or fast-spreading, at least here in King County, and is only found in a few locations. It also looks pretty different with its long, narrow leaves, smaller size and pinker flowers. It also lacks the hollow stems so characteristic of the other knotweeds. More details on identification can be found on our [knotweed page](#) or you can call us at 206-296-0290.

Because of the serious threat knotweed poses, there are many efforts underway to try to stop its spread on rivers and in natural areas as well as on private property. From individual property owners up to all levels of government, people are beginning to fight back against this challenging plant. We now better understand the extent of the problem and the way knotweed spreads downstream, ignoring all property lines. The most effective knotweed control projects are cooperative efforts between all affected property owners that are planned strategically from the top of the watershed down. Our own program has been able to pool resources and funding from state, federal, and county government, non-profits and private landowners to get started on several knotweed control projects along King County rivers. Our efforts are just a start and we certainly can't control all the knotweed in the county, but we are heartened by the progress we have made in only a few years. More information on our knotweed projects can be found below in this newsletter or in our [project reports](#). In addition, other county agencies, cities, non-profits like Mountains to Sound Greenway and many private landowners are controlling knotweed in the county so it might be possible yet to turn the tide on this plant.

All of the knotweed control being done in King County is purely voluntary at this point. Because of how widespread it is in our county, control of invasive knotweed species is not required. However, we strongly recommend control when possible, especially as part of a cooperative effort along waterways or other natural areas that can be severely damaged by these plants. We are not tracking locations of knotweed in the county at this time except for our special project areas. However, if you are concerned about particular populations of knotweed and would like advice or other information, please feel free to contact our program at 206-296-0290 or drop us an email at noxious.weeds@kingcounty.gov.

Weed Tips for August

Put on your gloves and pull flowering [tansy ragwort](#) before it seeds. Dry ground means the roots can be tough to pull out, so bring a trowel or shovel along to help get the roots out. If pulling will take too long, get some clippers and cut off the tops to prevent seeding. Make sure to bag up all flowering stems or pile them in a truck or trailer (covered of course) and send them off with your garbage. Make sure to keep pulled plants away from livestock – tansy ragwort remains toxic when dry and is more palatable after being pulled. Also, remember that pulling that tansy ragwort now will prevent 10 years or more of weeding in the future! If you live in King County, we can mail you a voucher to cover the cost of taking your plants to the transfer station – just call or email our office and let us know you have a load of tansy ragwort to discard (206-296-0290 or noxious.weeds@kingcounty.gov).

Wash your mowers after cutting weedy fields. All too many weed populations get started when we move plant parts from infested areas to weed-free fields on our equipment. Washing mowers and tractors greatly reduces the chance you will spread weeds. Seeds can stick to equipment or even people – ever notice burs stuck to your boots – and dirt and mud can contain weed seeds. There are many weeds that can form seeds after they are cut so even the flowers are a risk. It's better to be safe than sorry and wash off your equipment and boots before moving to new areas.

Watch for a new flush of weeds after summer rains. We had an unusually wet July and this means that all plants are getting more water than usual, weeds included. You may get surprising re-growth of weeds you thought you controlled and new weeds might pop up as seeds germinate. We've seen tansy ragwort grow from root crowns to flower again and garlic mustard flowering off of side shoots after it already went to seed. There are flushes of annoying annual weeds everywhere, taking advantage of the extra water, and plants like knotweed are just growing bigger and stronger.

Report [designated Class A and B noxious weeds](#) on roads and trails. It's not too late to control noxious weeds along roadsides, trails and parks but we can't find all the weeds ourselves. If you see a patch of tansy ragwort, purple loosestrife or any other regulated noxious weed, please contact our office and we will make sure the right agency or property owner gets notified quickly. We can be reached at 206-296-0290 or you can use our online infestation report form, <http://dnr.metrokc.gov/weeds/Infestations-Form.cfm>.

Cut [purple loosestrife](#) at the base or pull them up roots and all. This is the month to control purple loosestrife if you have plants growing on your lakeshore, stormwater ponds, ditches or wetlands. At the very least, flowering plants should be cut at the base and the stems should be discarded in the garbage to prevent spread by fragments or seeds. Sometimes if the plants are growing in mud, you can even pull up most of the roots with the stem, setting the plant back even more than cutting. If you notice purple loosestrife looking all brown and eaten up by bugs, you are seeing the wonderful effects of the purple loosestrife beetle. Many populations of purple loosestrife have been significantly reduced by these wonder-beetles, although the results vary from year to year. Sometimes plants will flower even with the bugs doing their work, so go ahead and cut back any stems that manage to form flowers. If you are unsure how to tell purple loosestrife apart from spiraea or fireweed, just call or email us and we can help: 206-296-0290 or noxious.weeds@kingcounty.gov. Also, make sure to carefully discard all purple loosestrife in the garbage – composting loosestrife is just asking for trouble!

Get busy with your [knotweed](#) control. August is a great month for controlling knotweed. It is an effective time to control plants with foliar spray and stem-injection, it's a good time to cut it down one more time and install your heavy duty fabric or plastic, or, if digging is your only option, it is a good time for that too. It also helps that the rivers are low and the weather is generally pleasant and sunny. If you need advice on what works and what doesn't, just check out [our website](#) or [contact our office](#) at 206-296-0290.

Vacancy on the King County Weed Board

Long-time [King County Weed Board](#) member Woody Bernard retired this month. The county has been very fortunate to have Woody on the weed board for the past eight years. Since he started, the noxious weed program has grown from a small, start-up program to a fully-staffed and highly productive noxious weed program. Woody has been a great help in overseeing this transition and in keeping us solidly on track with our mission to reduce the impacts of noxious weeds on agricultural and natural resources in the county. We will miss Woody's staunch advocacy, his focus on our key goals, and his help in keeping our weed control priorities in tune with the interests of the citizens of the county. Even more, we will miss Woody's generosity with his time and his sincere dedication to protecting King County from the damaging impacts of noxious weeds.

Woody's retirement opens up a position on the County Weed Board that we would like to fill as soon as possible. The King County Weed Board is authorized by Washington's Noxious Weed Law, RCW 17.10, and is made up of 5 citizens appointed by the County Executive and confirmed by County Council. Ideally, Board members should be engaged in some form of primary production. This could include fruits and vegetables, livestock, hay, nursery stock, flowers, Christmas trees, timber or any other agricultural products. Other experience related to noxious weeds is also highly valued and Board members have also been involved in restoration, natural resources, vegetation management and other related fields. Board members each represent a geographic area and should live in that region (for the county weed district map see: <http://dnr.metrokc.gov/wlr/lands/weeds/photos/WeedDistrictsMap.jpg>). The open District 4 includes, roughly, the cities of Newcastle, Renton, Tukwila, Kent, Auburn, Algona and Pacific, and the unincorporated areas to the east of those cities and west of Issaquah and 196th Ave SE extended more or less south to the Green River.

If you are interested in serving on the Board or would like more information, please contact Steve Burke at 206-205-6927 or steven-j.burke@kingcounty.gov.

King County Knotweed Projects are in Full Swing

In addition to our usual late summer suspects of tansy ragwort and purple loosestrife, our program is also busy with knotweed control in July and August. Monica Walker, the knotweed project manager, is as busy as could be directing the bulk of our knotweed projects on the Green River, Middle and South Forks of the Snoqualmie and the South Fork of the Skykomish. Our funding sources for these projects include US Fish and Wildlife Service (\$18,000), USDA Forest Service (\$10,000), WSDA Knotweed Project (\$37,550) and of course our own program's contribution. The Green River/Soos Creek project is in the 4th year of control work and it is looking really good in the upper and middle watersheds. This part of the main river is pretty well controlled and now we will be moving farther up Soos Creek. The South Fork Skykomish River is in the 3rd year and this river system is proving to be highly challenging. We found much more knotweed on the Tye River, one of the tributaries, this year and there is still plenty left to be done. On a more upbeat note, the Middle Fork Snoqualmie Project is only in the 2nd year and we are making great progress there. This year we began working in the Three Forks Natural

Area, the final large knotweed infestation on the Middle Fork and just upstream from the confluence of the river's three forks. Because of the progress on the Middle Fork, we have been able to move EarthCorps crews to the South Fork Snoqualmie to begin knotweed control at Olallie State Park. As far as we could find, this is the most upstream infestation and we hope to continue downstream as funds allow.

And finally, we recently received the good news that the WRIA 8 Salmon Recovery Council approved our Cedar River knotweed project grant request to be recommended for King Conservation District funds. Starting in 2008, with the help of this grant, we hope to begin addressing the knotweed infestations on the Cedar River starting just below the City of Seattle Watershed and working our way downstream as far as funds allow. As with our other knotweed projects, the Cedar River project aims to increase ecosystem health and functioning of riparian forests along the river and major tributaries through a planned approach to controlling knotweed. Priority actions will include: a) survey for knotweed; b) develop priorities for control/eradication; c) community education/outreach; d) rapid response control by work crews; e) monitoring and evaluation. Given the importance of the Cedar River ecologically and the level of knotweed infestation on the river, we are excited to be starting work on that system.

Orange Hawkweed Controlled in Skykomish and Alpentel

[Orange hawkweed](#) is a huge threat to wildflower meadows in the mountains and it has gained a foothold nearby the valuable mountain meadows along Snoqualmie Pass and Stevens Pass. It is very challenging to stop this plant effectively without herbicide treatment applied at just the right time and with the right products. It is also hard for owners of ski chalets to see the problem when they are only at their properties when snow covers the ground! For these reasons and more, our program has taken on two special orange hawkweed control projects, one in Skykomish and nearby communities near Stevens Pass and one in Alpentel near Snoqualmie Pass.

In both cases, we controlled all of the orange hawkweed whether on private or public lands (unless the property owner chose otherwise and was able to do the control themselves). This allowed us to systematically treat the entire infested area so that adjacent properties wouldn't get re-infested by uncontrolled populations. In other words, we weren't stopped by property lines any more than the hawkweed is! Almost all property owners were able to give us permission to do this control work and both projects are showing great promise. The Skykomish project is in its third year and the results are looking very good. This year our program treated about 80 properties with a total of 3.3 acres of hawkweed in Skykomish, Sky Lane, Timber Lane Village and Baring. Where we have done treatments for two or more years, there is much less hawkweed and it looks like the overall infestation is in decline after years of increasing or at best holding steady. The Alpentel project just started this year and there are fewer properties, close to 30, so we should be able to stop the spread of that infestation as well. It currently covers approximately half an acre both on private properties and roadsides and the majority of that was included in our treatment area or was controlled by the property owners themselves.

Garden Loosestrife: Good News and Bad News

First the good news. Thanks to our grant from the Department of Ecology, we have begun our efforts to eradicate the relatively new populations of [garden loosestrife](#) scattered along the Snoqualmie River from Fall City to the Snohomish County Line. Given the threat of this species to riparian and wetland habitat and its limited distribution in the region, controlling the populations along the Snoqualmie River is critical to halting the spread of this plant. If we can stop the garden loosestrife on the river now, it may be possible to keep it from pushing out the

native species the way it has on nearby Rutherford Slough as well as Lake Sammamish and parts of the Sammamish River and Lake Washington. We were able to reassure organic and salmon-safe certified farms along the Snoqualmie River that our control work along the river would have no impact on their farming status. Garden loosestrife is a plant that prefers to be in wet soil or even growing out into shallow water, so along the river it is confined to sand bars and shoreline edges, usually below the high water mark. Of course, this is the area where it is so important to have native willows and other species providing shade and habitat for fish and wildlife and is the reason why it is so important to remove the plants now while they are still getting established.

Now the bad news. Our staff found two new rather large infestations of garden loosestrife this year. One is in the Sammamish area and the other is near Preston-Fall City Road, neither one directly connected to any known sites. What this means, unfortunately, is that either garden loosestrife is being moved over land by animals or people or there are even more undetected populations feeding into these areas. One of the new sites is on a small creek and the other is on a pond. It is possible that these are escaped populations from gardens and serves to remind us once again to “watch what you plant”! If you notice any garden loosestrife growing anywhere other than Lakes Sammamish and Washington and the Sammamish River, please [contact our program](#) (206-296-0290) or [report it online](#). If you have any questions about our garden loosestrife project on the Snoqualmie River, please contact our aquatic weed specialist [Katie Messick](#) at 206-263-6461.

Garlic Mustard found in Skamania County, Washington

Skamania County Noxious Weed Coordinator Sarah Prince recently discovered two populations of [garlic mustard](#) in her county. For those unfamiliar with this plant, it is the fast-spreading noxious weed we have been fighting in several forested parks in Seattle and Bellevue. This is the first sighting of garlic mustard near the Columbia River on the Washington side, although it is also known to occur in Clark County. Garlic mustard has also been found in five Oregon counties including three near the Columbia River. According to Julie Dileone from East Multnomah Soil & Water Conservation District, garlic mustard has been present in the area for some years, but only recently has started spreading rapidly, at least in part due to roadside mowing, and is now found high up on cliffs as well as in forests and along roads.

One of the alarming things about garlic mustard is its ability to thrive and spread in a wide range of habitats, from shady forests and streamsides to very dry, open cliffs and ledges along the Columbia River. Its presence in Skamania County demonstrates its ability to threaten pristine areas and provides a jumping off point for it to spread east of the mountains. Fortunately, Greg Haubrich, weed coordinator for Washington State Department of Agriculture, will be attending a meeting with the USFS, ODA, TNC and the NW Oregon Invasive Plant group to discuss garlic mustard along the Columbia River. This is a reminder of the importance of effective surveys, early detection, and, most importantly, rapid response. I believe we are still in a position to stop the spread of garlic mustard in the Puget Sound area if we keep up the pressure on the existing populations in Seattle and Bellevue and continue to act quickly to control any new satellite populations.

The Sad and Confusing Tale of the Orange Jewelweeds

One mystery we face every August concerns a rather pretty plant with orange flowers and delicate foliage that grows along streams, ditches, roads and gardens throughout our county. This time of the summer, we often encounter these orange-flowered members of the *Impatiens* genus, sometimes mixed in with other plants and sometimes growing in a quite alarming and

aggressive way. Visitors to Cottage Lake, Longfellow Creek, Kelsey Creek and many other places may notice these plants with their spotted orange flowers hanging down off of delicate, somewhat juicy stems. According to most of our reference books, this plant appeared to be one of two native species, either *Impatiens capensis* or *Impatiens noli-tangere*. However, the descriptions weren't perfect and the aggressive manner of growth suggested that it might not be native after all. Recently, researcher Peter Zika clarified the situation with many hours of careful research and two articles that do an excellent job of clearing up the confusion once and for all (Journal of the Torrey Botanical Society 133(4), 2006, pp. 593-600 and Novon 16, 11/7/2006, pp. 443-448).

According to Zika's research, the majority of the orange jewelweed that we see in King County is *Impatiens capensis* or spotted jewelweed. Although this species is native to eastern North America, it was introduced to the Pacific Northwest. It was first collected in the region in 1950 and has been spreading fairly quickly since then. Some references have called this species native to Washington, but Zika's work shows that is incorrect. Unfortunately, because of this confusion, people have been encouraging or even planting spotted jewelweed in our region, thinking it was a native species. In addition, it is spreading quickly on its own and moving into many streamsides and wetlands, at times quite quickly and aggressively.

One serious problem with spotted jewelweed is that it is hybridizing with a rare native plant called spurless balsam (*Impatiens ecalcarata*). This native is only found in a few places and it appears to be disappearing, at least partly due to the hybridization with spotted jewelweed. From Zika's research, it appears that both the introduced spotted jewelweed and the hybrid are drawing pollinators away from our rare native, further reducing its seed production. From Zika's work and our own observations, it appears that spotted jewelweed is highly competitive and able to spread into new areas and is sometimes quite abundant, while the populations of the native are in decline.

In King County, we have a few remnant populations of the native spurless balsam, numerous populations of the introduced spotted jewelweed and at least one population of the hybrid between them. To protect our few remaining populations of spurless balsam, it is crucial that care is taken when removing invasive plants where these plants are growing and if there is any doubt about identification, it is best to leave the area alone. These species can only be distinguished when in flower, so it is important to wait until the plants flower before attempting to determine which species you have. Once the plants flower, the introduced spotted jewelweed is distinguished by having spots on its flowers and a very obvious spur at the base of the flower. The native spurless balsam has no spur and no spots on the flowers, but otherwise looks very similar to the introduced species. Hybrids between these species have either spots or spurs but not both. In case that didn't seem challenging enough, there are also other species that resemble the common spotted jewelweed, including some that are native to eastern Washington and the northernmost parts of this state and on into Canada. For more information on spotted jewelweed, spurless balsam or related species, please [contact me](#) and I can mail you copies of Zika's articles or share my own observations.

Although spotted jewelweed is not on the noxious weed list or the prohibited plants list, it seems clear that it is a threat to our native *Impatiens* species and that it spreads aggressively in some situations. Because of this, I would strongly recommend that we avoid planting or moving around spotted jewelweed and that we keep our eyes out for our beleaguered native spurless balsam.

New Books on Invasive Species

Invasive Plants: A Guide to Identification, Impacts, and Control of Common North American Species, by Sylvan and Wallace Kaufman, available through Stackpole Books. General information on invasive plants and a field guide to common plant invaders across North America. <http://www.invasiveplantguide.com>

Invasive Species in the Pacific Northwest, eds P.D. Boersma, S.H. Reichard & A.N. Van Buren. Descriptions of the 100 worst invasive species (all taxa) in the Pacific Northwest including photos, range in the PNW, impacts and a quick management summary. <http://www.washington.edu/uwpress/search/books/BOEINV.html>.

King County Website and Email Addresses are Changing

The domain name for all of King County websites and email addresses is changing from **metrokc.gov** to **kingcounty.gov**. This will take place in stages over the next year and a half so the old addresses will still work for awhile. However, you can start using the new emails now and we have a new easy link to our website: www.kingcounty.gov/weeds. As the transfer moves forward, the links in this newsletter and earlier additions may not work, but the quick address above will continue to work and you can always navigate to the individual pages you need. Hopefully this will not cause too much of an inconvenience and please feel free to [contact me](#) (206-263-6468) if you encounter any problems with accessing our website.